**IN THE CLAIMS**:

Please amend claims 1-4, 6-10, 12-19, 21-25, 27-29, 31, 34, 36-39, 43, 44, 46, 50, and 51 as follows.

1.    (Currently Amended) A method, ~~including~~comprising:

determining a performance measure ~~characterizing~~representing performance of a communication channel between a first transceiver and a second transceiver in a telecommunication system by using an extended channel model which depends on a non-orthogonal modulation matrix, the communication channel ~~including~~comprising non-orthogonal modulation by the non-orthogonal modulation matrix, wherein modulation symbols are distributed using at least two radiation patterns, the performance measure being sensitive to the modulation; and

controlling the communication resources based on the performance measure.


2.    (Currently Amended) The method of claim 1, further ~~including~~comprising:

determining a plurality of performance measures for a plurality of communication channels between the first transceiver and the second transceiver; and

controlling the communication resources based on the performance measures.


3.    (Currently Amended) The method of claim 1, further ~~including~~comprising:

determining a second performance measure for a second communication channel between the first transceiver and a third transceiver; and

controlling the communication resources based on the determined performance measures.

4.　(Currently Amended)　The method of claim 1, further ~~including~~comprising:

determining the performance measure by using a channel model which ~~characterizes~~represents the communication channel between the first transceiver and the second transceiver.

5.　(Cancelled)

6.　(Currently Amended)　The method of claim 1, wherein the modulation matrix ~~includes~~comprises at least one symbol which is transmitted using at least two antenna resources within at least two symbol time intervals.

7.　(Currently Amended)　The method of claim 1, wherein the modulation matrix ~~includes~~comprises at least one element ~~in a group including:~~ of one row for forming a vector modulation, a plurality of rows for forming matrix modulation, a symbol rate greater than one, a row having a dimension greater than that of a channel

matrix, a column having a dimension greater than that of the channel matrix, effect of spreading, effect of carrier, effect of waveform, and effect of channelization codes.

8.	(Currently Amended)  The method of claim 1, further ~~including~~comprising:

determining the performance measure using at least one ~~element in a group including:~~ channel information on a radio channel associated with the communication channel, antenna weights associated with the communication channel, and modulation information on the communication channel.

9.	(Currently Amended)  The method of claim 1, wherein the performance measure comprises at least one element selected from ~~a group including~~[[:]] frame-error rate, bit-error rate, signal-to-noise ratio, signal-to-interference ratio, asymptotic efficiency, throughput, interference power, and noise power.

10.	(Currently Amended)  The method of claim 1, further comprising:

selecting a transmission method based on the performance measure.

11.	(Original)  The method of claim 1, wherein controlling the communication resources is based on comparison between a target value and the performance measure.

12.	(Currently Amended)  The method of claim 1, further ~~including~~comprising:

~~adapting~~configuring the communication resources to instantaneous requirements based on the performance measure.

13. (Currently Amended) The method of claim 1, wherein the communication channel further ~~includes~~comprises at least one ~~element in a group including:~~ of interleaving, spreading, carrier waveform, sub-carrier waveform, channel encoding, matrix modulation, vector modulation, multiple-input multiple output modulation, space-time coding, space-frequency coding, space-code coding, beam forming, multi-beam forming, radio channel, channel decoding, detection, equalizing, ~~RAKE~~ rake reception, and filtering of a received signal.

14. (Currently Amended) The method of claim 1, wherein the communication resources ~~include~~ comprise a transmit communication resource ~~selected from a group including:~~ comprising at least one of a temporal transmit communication resource, a spectral transmit communication resource, an encoding resource, a spatial transmit communication resource, and transmit power.

15. (Currently Amended) The method of claim 1, wherein the communication resources ~~include~~ comprise receive communication resources.

16. (Currently Amended) An apparatus, comprising:

~~A~~a determiner configured to determine a performance measure ~~characterizing~~representing performance of a communication channel between a first transceiver and a second transceiver in a telecommunications system by using an extended channel model which depends on a non-orthogonal modulation matrix, the communication channel ~~including~~comprising non-orthogonal modulation by the non-orthogonal modulation matrix, wherein modulation symbols are distributed using at least two radiation patterns, the performance measure being sensitive to the modulation; and

a controller configured to control the communication resources based on the performance measure.


17.    (Currently Amended)    The apparatus of claim 16, further ~~including~~comprising:

a determiner configured to determine a plurality of performance measures for a plurality of communication channels between the first transceiver and the second transceiver~~; and~~

~~a controller configured to control the communication resources based on the performance measures.~~


18.    (Currently Amended)    The apparatus of claim 16, further ~~including:~~ comprising:

a determiner configured to determine a second performance measure for a second

communication channel between the first transceiver and a third transceiver; and

~~a controller configured to control the communication resources based on~~

~~the determined performance measures~~.


19. (Currently Amended) The apparatus of claim 16, further

~~including~~comprising:

a determiner configured to determine the performance measure by using a channel

model which ~~characterizes~~represents the communication channel between the first

transceiver and the second transceiver.


20. (Cancelled)


21. (Currently Amended) The apparatus of claim 16, wherein the modulation

matrix ~~includes~~comprises at least one symbol which is transmitted using at least two

antenna resources within at least two symbol time intervals.


22. (Currently Amended) The apparatus of claim 16, wherein the modulation

matrix ~~includes~~comprises at least one ~~element in a group including:~~ of one row for

forming vector modulation, a plurality of rows for forming matrix modulation, a symbol

rate greater than one, a row having a dimension greater than that of a channel matrix, a

column with a dimension greater than that of a channel matrix, effect of spreading, effect of carrier, effect of waveform, and effect of channelization codes.

23.    (Currently Amended)  The apparatus of claim 16, wherein the determiner is configured to use at least one ~~element in a group including:~~ of channel information on a radio channel associated with the communication channel, antenna weights associated with the communication channel, and modulation information on the communication channel.

24.    (Currently Amended)  The apparatus of claim 16, wherein determiner is configured to ~~characterize~~ represent at least one ~~element selected from a group including:~~ of a frame-error rate of the communication channel, bit-error rate, signal-to-noise ratio, signal-to-interference ratio, asymptotic efficiency, throughput, interference power, and noise power.

25.    (Currently Amended)    The apparatus    of    claim    16,    further ~~including~~comprising:

a selector configured to select a transmission method based on the performance measure.

26.     (Previously Presented)  The apparatus of claim 16, wherein the controller is configured to control communication resources based on comparison of a target value and the performance measure.


27.     (Currently   Amended)     The   apparatus   of   claim   16,   further ~~including~~comprising:

an   adapter   configured   to   adapt   the   communication   resources   to instantaneous requirements based on the performance measure.


28.     (Currently   Amended)    The   apparatus   of   claim   16,   wherein   the communication  channel  further  ~~includes~~comprises  at  least  one  ~~element  in  a  group~~ ~~including:~~ of interleaving, spreading, carrier waveform, sub-carrier waveform, channel encoding,   matrix   modulation,   vector   modulation,   multiple-input   multiple   output modulation,  space-time  coding,  space-frequency  coding,  space-code  coding,  beam forming,  multi-beam  forming,  radio  channel,  channel  decoding,  detection,  equalizing, ~~RAKE~~ rake reception, and filtering of received signal.


29.     (Currently   Amended)    The   apparatus   of   claim   16,   wherein   the communication  resources  include  a  transmit  communication  resource ~~selected  from  a~~ ~~group including:~~ of at least one of a temporal transmit communication resource, a spectral

transmit communication resource, an encoding resource, a spatial transmit communication resource, and transmit power.

30. (Previously Presented) The apparatus of claim 16, wherein the communication resources include receive communication resources.

31. (Currently Amended) An apparatus comprising:

a performance measure estimator configured to determine a performance measure that ~~characterizes~~represents performance of a communication channel between a first transceiver and a second transceiver by using an extended channel model which depends on a non-orthogonal modulation matrix,

the communication channel ~~including~~comprising non-orthogonal modulation by the non-orthogonal modulation matrix,

wherein modulation symbols are distributed using at least two radiation patterns, and wherein the performance measure is sensitive to the modulation; and

a controller connected to the performance measure estimator, the controller being configured to control the communication resources based on the performance measure.

32. (Previously Presented) The apparatus of claim 31, wherein the performance measure estimator is configured to determine a plurality of performance

measures for a plurality of communication channels between the first transceiver and the second transceiver; and

wherein the controller is configured to control the communication resources based the performance measures.

33. (Previously Presented) The apparatus of claim 31, wherein the performance measure estimator is configured to determine a second performance measure for a second communication channel between the first transceiver and a third transceiver; and

wherein the controller is configured to control the communication resources based on the determined performance measures.

34. (Currently Amended) The apparatus of claim 31, wherein the performance measure estimator is configured to determine the performance measure by using a channel model which ~~characterizes~~represents the communication channel.

35. (Cancelled)

36. (Currently Amended) The apparatus of claim 31, wherein the modulation matrix ~~includes~~comprises at least one symbol which is transmitted using at least two antenna resources within at least two symbol time intervals.

37.    (Currently Amended)  The apparatus of claim 31, wherein the modulation matrix ~~includes~~comprises at least one ~~element in a group including:~~ of one row for forming a vector modulation, a plurality of rows for forming a matrix modulation, a symbol rate greater than one, a row having a dimension greater than that of a channel matrix, a column having a dimension greater than that of the channel matrix, effect of spreading, effect of carrier, effect of waveform, and effect of channelization codes.

38.    (Currently Amended)  The apparatus of claim 31, wherein the performance measure estimator is configured to determine the performance measure using at least one ~~element in a group including:~~ of channel information on a radio channel associated with the communication channel;, antenna weights associated with the communication channel;, and modulation information on the communication channel.

39.    (Currently Amended)  The apparatus of claim 31, wherein the performance measure is configured to ~~characterize~~ represent at least one ~~element selected from a group including:~~ of frame-error rate of the communication channel, bit-error rate, signal-to-noise ratio, and signal-to-interference ratio.

40.    (Previously Presented)  The apparatus of claim 31, wherein the controller is configured to select a transmission method based on the performance measure.

41.     (Previously Presented)  The apparatus of claim 31, wherein the controller is configured to control communication resources based on comparison between a target value and the performance measure.

42.     (Previously Presented)  The apparatus of claim 31, wherein the controller is configured to adapt the communication resources to instantaneous requirements based on the performance measure.

43.     (Currently Amended)   The apparatus of claim 31, wherein the communication channel further ~~includes~~comprises at least one ~~element in a group including:~~ of interleaving, spreading, carrier waveform, sub-carrier waveform, channel encoding, matrix modulation, vector modulation, multiple-input multiple output modulation, space-time coding, space-frequency coding, space-code coding, beam forming, multi-beam forming, radio channel, channel decoding, detection, equalizing, ~~RAKE~~ rake reception, and filtering of a received signal.

44.     (Currently Amended)   The apparatus of claim 31, wherein the communication resources ~~include~~ comprise a transmit communication resource ~~selected from a group including:~~ of at least one of a temporal transmit communication resource, a

spectral transmit communication resource, an encoding resource, a spatial transmit communication resource, and transmit power.

45.    (Previously Presented)    The apparatus of claim 31, wherein the communication resources include receive communication resources.

46.    (Currently Amended)  An apparatus comprising:

means for determining a performance measure ~~characterizing~~representing performance of a communication channel between a first transceiver and a second transceiver by using an extended channel model which depends on a non-orthogonal modulation matrix, the communication channel ~~including~~comprising non-orthogonal modulation by the non-orthogonal modulation matrix, wherein modulation symbols are distributed using at least two radiation patterns, the performance measure being sensitive to the modulation; and

means for controlling the communication resources based on the performance measure.

47.    (Previously Presented)    The method of claim 1, further comprising determining the performance measure by using a receive filter matrix which depends on a non-orthogonal matrix via the extended channel model.

48.     (Previously Presented)  The apparatus of claim 16, wherein the determiner is configured to determine the performance measure by using a receive filter matrix which depends on a non-orthogonal matrix via the extended channel model.


49.     (Previously Presented)  The apparatus of claim 31, wherein the performance measure estimator is configured to determine the performance measure by using a receive filter matrix which depends on a non-orthogonal matrix via the extended channel model.


50.     (Currently Amended)  An apparatus, comprising:

a performance measure estimator configured to determine a performance measure that ~~characterizes~~represents performance of a communication channel between a base station and a mobile station by using an extended channel model which depends on a non-orthogonal modulation matrix, the communication channel ~~including~~comprising non-orthogonal modulation by the non-orthogonal modulation matrix, wherein modulation symbols are distributed using at least two radiation patterns and wherein the performance measure is sensitive to the modulation; and

a radio frequency part configured to transmit the determined performance measure to the base station for controlling communication resources.


51.     (Currently Amended)  An apparatus, comprising:

a controller configured to

receive a performance measure that ~~characterizes~~<u>represents</u> performance of a communication channel between a first transceiver and a second transceiver by using an extended channel model which depends on a non-orthogonal modulation matrix, the communication channel ~~including~~<u>comprising</u> non-orthogonal modulation by the non-orthogonal modulation matrix, wherein modulation symbols are distributed using at least two radiation patterns and wherein the performance measure is sensitive to the modulation, and

~~to~~ control<u>;</u> communication resources based on the received performance measure.